

**AMENDMENTS TO THE CLAIMS**

Please make the following amendments to the claims:

1-94. (Cancelled)

95. (New) An interleaved generalized convolutional encoder in a transmitter, the encoder configured to receive a stream of input symbols and to produce an interleaved and convolutionally encoded stream of output symbols, the encoder comprising:

a series of delay elements each having a delay of M symbol periods, where M is greater than one and is configurable at run-time,

the first delay element receiving as input the current symbol from the input stream,

each of the remaining delay elements receiving as input the delayed symbol as output from the prior delay element;

a plurality of taps, each tap disposed at the output of one of the delay elements;

a first multiplier disposed at the input stream and multiplying the current symbol by a first coefficient;

a series of second multipliers, each second multiplier coupled to one of the taps and multiplying the delayed symbol by one of a plurality of second coefficients; and

a series of adders, the first adder receiving multiplied data from the first multiplier and the first in the series of second multipliers, each of the remaining adders receiving multiplied data from a current and a previous multiplier in the series of second multipliers, each adder adding the received data to produce an intermediate symbol,

wherein the intermediate symbol produced by the last adder is an interleaved convolutionally encoded symbol in the output stream.

96. (New) The encoder of claim 95, wherein the delay M is determined based on the quality of a transmission path between the transmitter and a receiver in communication with the transmitter.

97. (New) The encoder of claim 95, wherein the delay M is determined based on noise affecting the transmission of data between the transmitter and a receiver in communication with the transmitter.

98. (New) The encoder of claim 95, wherein the delay M is dynamically determined by a receiver in communication with the transmitter.

99. (New) The encoder of claim 98, wherein the delay M is determined based on the quality of a transmission path between the transmitter and the receiver.

100. (New) The encoder of claim 98, wherein the delay M is determined based on noise affecting the transmission of data between the transmitter and the receiver in communication.

101. (New) The encoder of claim 95, wherein the delay element comprises a plurality of unit time delays.

102. (New) The encoder of claim 95, wherein series of adders comprises a plurality of binary exclusive-OR gates.

103. (New) The encoder of claim 95, wherein the series of adders is implemented with firmware.

104. (New) The encoder of claim 95, wherein the encoder is implemented with software that is executed by a processor.

105. (New) The encoder of claim 95, where M has the same first value for successive symbols in the input stream unless reconfigured to a second value.

106. (New) A modem that includes the encoder of claim 95.

107. (New) An interleaved generalized convolutional encoder in a transmitter, the encoder configured to receive a stream of input symbols and to produce an interleaved and convolutionally encoded stream of output symbols, the encoder comprising:

a plurality of delay means, each having a delay of M symbol periods, where M is greater than one and is configurable at run-time,

the first delay means receiving as input the current symbol from the input stream,

each of the remaining delay means receiving as input the delayed symbol as output from the prior delay element;

a plurality of taps, each tap disposed at the output of one of the delay elements;

a multiplying means comprising

first logic for multiplying the current symbol in the input stream by a first coefficient; and

second logic for multiplying each of the delayed symbols produced by the delay elements by a second coefficient, the second coefficient associated with the corresponding delay element; and

a series of adders, the first adder receiving multiplied data from the first multiplier and the first in the series of second multipliers, each of the remaining adders receiving multiplied

data from a current and a previous multiplier in the series of second multipliers, each adder adding the received data to produce an intermediate symbol,

wherein the intermediate symbol produced by the last adder is an interleaved convolutionally encoded symbol in the output stream.

108. (New) The encoder of claim 107, wherein the delay M is determined based on the quality of a transmission path between the transmitter and a receiver in communication with the transmitter.

109. (New) The encoder of claim 107, wherein the delay M is determined based on noise affecting the transmission of data between the transmitter and a receiver in communication with the transmitter.

110. (New) The encoder of claim 107, wherein the delay M is dynamically determined by a receiver in communication with the transmitter.

111. (New) The encoder of claim 110, wherein the delay M is determined based on the quality of a transmission path between the transmitter and the receiver.

112. (New) The encoder of claim 110, wherein the delay M is determined based on noise affecting the transmission of data between the transmitter and the receiver in communication.

113. (New) The encoder of claim 107, wherein the delay element comprises a plurality of unit time delays.

114. (New) The encoder of claim 107, wherein series of adders comprises a plurality of binary exclusive-OR gates.

115. (New) The encoder of claim 107, wherein the series of adders is implemented with firmware.

116. (New) The encoder of claim 107, wherein the encoder is implemented with software that is executed by a processor.

117. (New) The encoder of claim 107, where M has the same first value for successive symbols in the input stream unless reconfigured to a second value.

118. (New) A modem that includes the encoder of claim 107.